

**Notice of Allowability**

Application No.

10/512,043

Examiner

Kamran Afshar, 571-272-7796

Applicant(s)

CHOI, WAN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/12/2006.
2. ☒ The allowed claim(s) is/are 1-9.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 01/17/2006
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

*Drawings*

**DETAILED ACTION**

**EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Caleb Pollack, Reg. No.: 37,912 on 5/12/2006.

The application has been amended as follows:

**In The Claim(s):**

9. (Amended) A base station in a mobile communication network, comprising:

a polarized antenna having first and second branches;

a first delay element for time-delaying a signal received at the second branch of the polarized antenna so as to distinguish an offset of the signal from an offset of a signal received at the first branch;

[an] a first adder for adding the signal received at the first branch and the signal received at the second branch and time-delayed by the first delay element; [and]

a second adder for adding a first signal received at the antenna and a second signal received at the antenna and being time-delayed by a second delay element;

a modem processor for considering an offset distinguishable signal from the added signals as a different multipath signal, and separating ~~the same~~ the offset distinguishable signal from the added signals;

further comprising:

first and second RF (radio frequency) processors respectively connected to the first and second adders, for converting the respective signals from the first and second adders into IF (intermediate frequency) signals; and

first and second IF processors respectively connected between the first and second RF processors and the modem processor.

**Drawing(s) :**

2. The following changes to the drawings have been approved by the examiner and agreed upon by applicant: Figures 5-6 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated.. In order to avoid abandonment of the application, applicant must make these above agreed upon drawing changes.

***Allowable Subject Matter***

3. Claims 1-9 are allowed.

The following is an examiner's statement of reasons for allowance: 1-9.

With respect to claim 1, Strich (U.S. Pub. No.: 2002/0054580 A1) is the closest prior art to the application invention which discloses a base station in a mobile communication network, comprising: first and second polarized antennas respectively having two branches (See e.g. 85-86 of Fig. 2) and being formed in a same sector (See e.g. Sector # 1 of Fig. 2), further discloses the first and second delay elements (See e.g. 95A-95B of Fig. 2) and first and second adders (See e.g. 92s of Fig. 2);

Sarresh (U.S. Pub. No.: 2003/0171139 A1), which discloses diversity branch delay alignment in radio base station (See e.g. Title).

However, the prior art of record fails to disclose singly or in combination or render obvious that the first delay element for time-delaying a signal received at the second branch from among signals received at the first and second branches of the first polarized antenna so as to distinguish an offset of the signal from an offset of a signal received at the first branch; a second delay element for time-delaying a signal received at the fourth branch from among signals received at the third and fourth branches of the second polarized antenna so as to distinguish an offset of the signal from an offset of a signal received at the third branch; a first adder for adding the signal received at the first branch of the first polarized antenna and a signal time-delayed by the first delay element; a second adder for adding the signal

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received at the third branch of the second polarized antenna and a signal time-delayed by the second delay element; and a modem processor for receiving the signals added by the first and second adders and separating an offset distinguishable signal from the respective signals.

With respect to claim 5, the prior art of record fails to disclose singly or in combination or render obvious that the method comprising: receiving signals through first and second polarized antennas respective having first and second branches and third and fourth branches formed in the same sector; time-delaying the signals received at the second branch of the first polarized antenna and the fourth branch of the second polarized antenna so as to distinguish offsets of the signals from offsets of signals received at the first and third branches; adding the signal received at the first branch and the signal received at the second branch and time-delayed into a first add signal, and adding the signal received at the third branch and the signal received at the fourth branch and time-delayed into a second add signal; and separating an offset distinguishable signal from the first and second add signals.

With respect to claim 9, the prior art of record fails to disclose singly or in combination or render obvious that the first delay element for time-delaying a signal received at the second branch of the polarized antenna so as to distinguish an offset of the signal from an offset of a signal received at the first branch; a first adder for adding the signal received at the first branch and the signal received at the second branch and time-delayed by the first delay element; a second adder for adding a first signal received at the antenna and a second signal received at the antenna and being time-delayed by a second delay element; a modem processor for considering an offset distinguishable signal from the added signals as a different multipath signal, and separating the offset distinguishable signal from the added signals; further comprising: first and second RF (radio frequency) processors respectively connected to the first and second adders, for converting the respective signals from the first and second adders into IF (intermediate frequency) signals; and first and second IF processors respectively connected between the first and second RF processors and the modem processor.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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**Conclusion**

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Okubo (U.S. Pub. No.: 2003/0029596 A1).

b) Kichener (U.S. Pub. No.: 2002/0085643 A1).

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kamran Afshar whose telephone number is (571) 272-7796. The examiner can be reached on Monday-Friday.

If attempts to reach the examiner by the telephone are unsuccessful, the examiner's supervisor, **Feild, Joseph** can be reached @ (571) 272-4090. The fax number for the organization where this application or proceeding is assigned is **571-273-8300** for all communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Kamran Afshar

  
**JOSEPH FEILD**  
SUPERVISORY PATENT EXAMINER